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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/742,915   | 12/23/2003  | Hyung Ki Hong        | 8733.985.00-US      | 7350             |
| 30827  | 7590        | 05/01/2006           | EXAMINER            |                  |
| MCKENNA LONG & ALDRIDGE LLP<br>1900 K STREET, NW<br>WASHINGTON, DC 20006 |             |                      |                     | DUDEK, JAMES A   |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2871                |                  |

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/742,915             | HONG, HYUNG KI      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | James A. Dudek         | 2871                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION**

**REJECTIONS BASED ON 976 REFERENCE**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 3-4 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over 976 in view of US006048071A (071).

Per claim 1, 976 teaches a liquid crystal display module, comprising: a lamp generating light [7]; a light guide panel that converts an incident light from the lamp into a surface light [11], said light guide panel having a first refractive index [1.52, see example 1]; a low refractive index layer on the light guide panel having a second refractive index which is lower than the first refractive index [12, 1.38 and 1.46 index of refraction, see examples 1 and 4], reflecting the light incident to the light guide panel on the border area [see figure 8]; and a reflective type of liquid crystal display panel that illuminates a picture by reflecting the light coming from the low refractive index layer see 3 and 23'].

976 lacks the condensing device located between the lamp and light guide. However, 071 teaches incorporating a condensing device to control the light from the light source, see column 21, second paragraph. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention combine the condenser of 071 with 976.

Per claims 3 and 10, 976 teaches the liquid crystal display module according to claim 1, wherein a condition in which light is totally reflected on the border surface of the light guide panel and the low refractive index layer is defined by  $90^\circ > \sin \theta / \sin \phi = 1$  (the first refractive index) >  $\sin \theta / \sin \phi = 1$  (the second refractive index / the first refractive index) [since the index of refraction for both high and low refractive index layers, this equation is inherently met].

Per claim 9, 976 teaches the liquid crystal display module according to claim 1, further comprising a condensing device located between the lamp and the light guide panel [5].

Per claim 2, 976 teaches the liquid crystal display module according to claim 1, but lacks the low refractive index layer being adhered to the light guide panel. However, it was well known to adhere layers in a liquid crystal cell in order to reduce slippage. Accordingly it was have been obvious to one of ordinary skill at the time of invention.

Per claims 4 and 11, 976 teaches the liquid crystal display module according to claim 9, wherein the first refractive index is 1.5 [1.52] and the second refractive index is 1.35 [1.38]. Although, 976 does not teach the exact values claim in claims 4 and 11, it does teach overlapping ranges. Accordingly, it would have been obvious to one of ordinary skill to at the time of invention to improve the reflectance between the layers.

### **REJECTIONS BASED ON 921 REFERENCE**

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-9 and 12-15 is rejected under 35 U.S.C. 103(a) as being unpatentable over 921 in view of 071.

Per claim 1, 921 teaches a liquid crystal display module, comprising: a lamp generating light [2]; a light guide panel that converts an incident light from the lamp into a surface light [1], said light guide panel having a first refractive index [see column 13, 2<sup>nd</sup> paragraph]; a low refractive index layer on the light guide panel having a second refractive index which is lower than the first refractive index [adhesive 13 and 15], reflecting the light incident to the light guide panel on the border area [see figure 7]; and a reflective type of liquid crystal display panel

that illuminates a picture by reflecting the light coming from the low refractive index layer [see 20].

Per claim 5, 921 teaches the liquid crystal display module according to claim 1, further comprising: a polarizing sheet on the low refractive index layer [12b]; a phase difference compensation sheet on the polarizing sheet [12a]; and a diffusion sheet on the phase difference compensation sheet [25].

Per claim 7-8, 921 teaches the liquid crystal display module according to claim 5, wherein the reflective type of liquid crystal display panel includes: a lower substrate having a reflective electrode, the reflective electrode reflects the light going out from the low refractive layer; and an upper substrate facing the lower substrate with liquid crystal therebetween [23 and 21'].

Per claim 6, 921 teaches the liquid crystal display module according to claim 5, wherein the polarizing sheet is adhered to the low refractive index layer but lack an explicit teaching that the phase difference compensation sheet is adhered to the polarizing sheet; and the diffusion sheet is adhered to the phase difference compensation sheet. However it was well known to adhere layer in a liquid crystal cell in order to prevent misalignment of the layers. Accordingly it was have been obvious to one of ordinary skill to adhere the layers to each other in 921.

921 lacks the condensing device located between the lamp and light guide. However, 071 teaches incorporating a condensing device to control the light from the light source, see column 21, second paragraph. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention combine the condenser of 071 with 921.

Per claim 9, 921 teaches the liquid crystal display module according to claim 1, further comprising a condensing device located between the lamp and the light guide panel [top surface of 1]. However, this condensing element is not separate. But, it would have been obvious to one of ordinary skill at the time of invention to separate in order to decrease the manufacturing cost the plate 1.

#### *Response to Arguments*

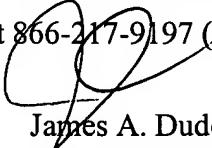
Applicant's arguments filed 1/12/06 are moot.

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 571-272-2290. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
James A. Dudek  
Primary Examiner  
Art Unit 2871